

the first and second strategies, respectively, which were much lower than the 2013 Indonesian Gross Domestic Product (GDP) per capita of US\$ 4,790. **CONCLUSIONS:** The implementation of a birth-dose rotavirus vaccination strategy in Indonesia would be more cost-effective than a later vaccination schedule. The mortality rate and vaccine price were the most influential parameters impacting the cost-effectiveness results.

PIH13

THE PHARMACOECONOMICS REVIEW OF 7-VALENT PNEUMOCOCCAL CONJUGATE VACCINATION IN ASIAN-PACIFIC REGION

Zhu L

Analysis Group, Cambridge, MA, USA

OBJECTIVES: Since 2000, when the PCV7 (7-valent Pneumococcal Conjugate Vaccine) gradually went public, lots of cost-effectiveness evaluations on it have been done in Euro-American countries. In contrast, there is little economic review on PCV7 in Asian-Pacific region. This review comprehensively evaluated the cost and benefit of introducing PCV7 into the national immunization plan (evaluation include with and without the herd effect) of the Asia-Pacific region, to serve as a policy reference for the Asian-Pacific regions in their immunization plans. **METHODS:** All articles were identified from PubMed and Embase database between January 1st, 2002 and June 30th, 2013 in Korea, Hong Kong, Malaysia, Singapore, Australia and Japan. The following keywords were used: cost, cost-effectiveness, pneumococcal diseases and pneumococcal conjugate vaccine. Results were collected in terms of different assumptions, such as incidence ratios, vaccine uptake rate, and duration of protection and so on. Costs included both direct and indirect cost. **RESULTS:** The clinical benefits and cost effective results varied from country to country. For illnesses avoided, the results varied between 4,030 and 30,040 per year. In terms of deaths avoided, the number of events varied between 14.2 and 643 per year. Studies that considered herd effects reported much more favorable cost-effectiveness than those that did not, with the ICERs US\$5,929/LYG in Hong Kong, US\$10,261/LYG in Malaysia, US\$43,275/QALY in Singapore from social perspective. **CONCLUSIONS:** With respect to the WHO's classification that an intervention is cost-effective if ICER is between 1 And 3 times of GDP, universal PCV7 vaccination would be considered cost-effective in Hong Kong, Malaysia and Singapore.

INDIVIDUAL'S HEALTH – Patient-Reported Outcomes & Patient Preference Studies

PIH15

PARTIAL REIMBURSEMENT OF ANTIVIRAL AGENTS FOR HBV: IMPACT ON ANTIVIRAL UTILIZATION AND COMPLIANCE

Qiu Q¹, Duan XW², Li Y², Yang LK², Chen Y², Li H¹, Duan ZP², Wang L¹

¹Peking Union Medical College & Chinese Academy of Medical Science, Beijing, China, ²Beijing You'an Hospital of Capital Medical University, Beijing, China

OBJECTIVES: To determine the impact of partial reimbursement on antivirals which was first implemented in July 1, 2011 on antiviral utilization and compliance for CHB patients in Beijing. **METHODS:** Two separate cohorts were enrolled. These consisted 14,163 CHB outpatients who were referred to Beijing You'an Hospital during Jan 1, 2010 to Dec 30, 2010 and 16,228 between Jul 1, 2011 and Jun 30, 2012. Follow-up ended on Jun 30, 2011 and Dec 31, 2012, respectively. Demographic characteristics, routine biochemical and virological detection results, and antiviral prescription information were collected from electronic database. Antiviral utilization, medication possession ratio (MPR) and persistence rate were compared between patients with medical insurance (PMI) and paid out-of-pocket (PPO). Questionnaire survey was given to randomly sample 307 outpatients to confirm the validity of the electronic database. **RESULTS:** A total of 13,364 outpatients from each cohort were enrolled after propensity score matching. The antiviral utilization rate for PMI increased from 57.4 to 75.9% ($P<0.001$) after the reimbursement policy and the rate among PPO increased from 54.9 to 56.7% ($P=0.028$). A 5% increase ($83.4\%\pm 24.3$ vs. $88.7\%\pm 19.4\%$, $P<0.0001$) in MPR was observed among PMI after reimbursement and an increase of under 2% was observed among PPO ($83.7\%\pm 24.2$ vs. $85.2\%\pm 23.1\%$, $P=0.0055$). About 71% of the patients had more than 80% MPR in each cohort before reimbursement. This increased to 79.3% ($P<0.0001$) and 73.0% ($P=0.0228$) for PMI and PPO, respectively. PMI had a higher 6-, 12-, 15-month persistence rate than PPO, especially for outpatients receiving ETV and ADV. The questionnaire with 100% respond rate showed that more than 90% outpatients only took antiviral medicine at You'an Hospital, suggesting the validity of the electronic database. **CONCLUSIONS:** The new reimbursement policy showed a positive impact on antivirals utilization as well as compliance for insured CHB patients, especially for patients receiving ETV and ADV.

PIH16

JOINT MODELING OF PRIMARY AND SECONDARY NON-ADHERENCE OUTCOMES

Pedan A, Geng J

InVentiv Health, Burlington, MA, USA

OBJECTIVES: Medication non-adherence to chronic therapies may severely impact effectiveness of treatment. Non-adherence may occur at different stages in a patient's treatment journey. It may occur at the very beginning of therapy if a patient receives the initial prescription but does not redeem it at a pharmacy (primary non-adherence), or it may happen after the patient fills a prescription at a pharmacy but fails to follow the instructions or fails to refill the prescription (secondary non-adherence). **METHODS:** The purpose of this study is to demonstrate that both primary and secondary non-adherences can be jointly described by a hurdle model, which has the interpretation as a two-part model. The first part is a binary outcome model, and the second part is a truncated count model (Poisson or negative binomial). The hurdle model is an example of the finite mixture models which can be fitted by SAS's new procedure PROC FMM. **RESULTS:** Data in this retrospective cohort study of medication non-adherence was obtained from blind computerized pharmacy records of a national retail pharmacy chain.

Primary non-adherence was defined as a binary outcome representing failure to fill a new prescription within 30 days after the medication was prescribed to the patient and secondary non-adherence was defined as a number of refills obtained by a patient within a 12 month follow up period. Various measured patient, prescription, and prescribing physician characteristics were included in the model. Hurdle model results indicate that important predictors are missing from the single-component models, but exist in the joint model of primary and secondary non-adherence. **CONCLUSIONS:** The authors conclude that a hurdle modeling approach enables the taking of simple, well-understood models primary (logistic regression) and secondary non-adherence (count regression) and combine them in a way that provides a better description of the data than a single-component models provide separately.

PIH17

A QUALITATIVE ASSESSMENT OF DOCTORS PERCEPTION TOWARDS THE QUALITY OF PHARMACEUTICAL CARE SERVICES IN KHYBER PAKHTUNKHWA, PAKISTAN

Azhar S¹, Murtaza G², Kousar R³

¹COMSATS Institute of Information Technology, Abbottabad, Pakistan, ²COMSATS, Abbottabad KPK Pakistan, Pakistan, ³COMSATS, Abbottabad, Pakistan

OBJECTIVES: The main objective of this study is to explore the perception of doctors regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. **METHODS:** A qualitative study design was adopted. A semi-structured interview guide was developed, through snowball sampling technique face to face interviews were conducted until saturation point has reached till 15th doctors. Doctors from public and private hospitals in Khyber Pakhtunkhwa, Pakistan who were interviewed from December to February 2014. The interviews were conducted at the doctor's work-place. Written consent was obtained from the participants prior to the interview. **RESULTS:** Among the respondents interviewed, nine were male and six female doctors. Thematic content analysis yielded 4 major themes: (a) Collaboration of doctors and pharmacists, (b) Lack of provision of patient counseling, (c) Separation of prescribing & counseling services, (d) Patient compliance through pharmaceutical care. **CONCLUSIONS:** The findings demonstrated that implementation of pharmaceutical care provision would benefit the doctors and patient. Doctors were willing to collaborate with pharmacist because it will facilitate the doctors as due to time limit they are unable to do proper patient counseling. They have also showed positive response towards implementation of pharmacy practice which would definitely improve the patient compliance.

PIH18

REFERENCE VALUE OF BLOOD SERUM ALKALINE PHOSPHATASE IN MONGOLIAN ADULT

Chanagsuren G¹, Dorj E², Dorj O¹, Gunchin B³

¹School of Nursing, HSUM, Ulaanbaatar, Mongolia, ²School of Biomedicine, HSUM, Ulaanbaatar, Mongolia, ³Health Sciences University of Mongolia, Ulaanbaatar, Mongolia

OBJECTIVES: To determine the reference value of blood serum alkaline phosphatase of adult according to related age, sex, season and region. **METHODS:** In the research, totally 3742 people were conducted. The research was implemented and supported by central laboratory of Biomedical school, HSUM, "Mobio" laboratory of Korea and "Mega" laboratory. The research of serum alkaline phosphatase was made by the kinetic method which is confirmed by IFCC and used the liquid reagent of Roche Hospitex diagnostics and Human firm. The research result was statistically analyzed with standard programming the SPSS statistic. **RESULTS:** The mean value of blood serum alkaline phosphatase activity of adult with confidence interval $P = 0.95$, the mean value was for the male 81.78 ± 0.48 , ($n=1597$) U/L and for female 76.99 ± 0.41 ($n=2145$) U/L. While determining the Interval for reference value of blood serum alkaline phosphatase, interval was for male $51.08-112.47$ U/L8 U/L and for female $39.77-114.21$ U/L. Blood serum alkaline phosphatase activity of adult Mongolian have dependence of sex ($p<0.0001$) and it was high for male. Also, serum alkaline phosphatase activity is varying ($p<0.0001$, $r=0.102$) depending on age. There is no dependence of activity of serum ($p=0.43$) appeared by region. **CONCLUSIONS:** Mean value of serum alkaline phosphatase activity is for people 70.50 ± 0.63 U/L and minimum limit of reference value is $40.09-116.72$ U/L. The activity of serum alkaline phosphatase has deference from age and sex with confidence interval ($p=0.0001$). For male high, for female low, weak direct dependence from age ($r=0.102$) and strong direct dependence from sex were discovered.

PIH19

ASSESSMENT OF UTILITIES IN JAPAN: DATA AVAILABILITY AND METHODOLOGY

Chen X¹, Kim HR², Crawford B¹

¹Adelphi Values, Tokyo, Japan, ²The University of Tokyo, Tokyo, Japan

OBJECTIVES: Utility data are essential for cost-effectiveness analyses, especially with the introduction of HTA in Japan in 2016. Given a paucity of information regarding the availability of data and related research methodologies used in Japan, this study aims to present a comprehensive literature review regarding utility assessment in Japan. **METHODS:** Medline (English) and Ichushi (Japanese) were searched to understand where the utilities were derived. Search terms included Utility OR health state preference OR 効用値 OR QALY OR 質調整生存年 [Title/Abstract] and all articles published before November 30, 2013 were reviewed. Articles were required to detail the methods for utility development or selection, and needed to be based in Japan. They were also required to focus on the assessment of utilities or be part of a cost-effectiveness analysis. **RESULTS:** A total of 246 manuscripts were found after removing duplicates. From these, 137 were included in the full text review and 99 were selected for analysis. The number of studies increased from 1 manuscript in 2000 to a total of 16 in 2012 and 6 in 2013. 70 articles were cost-effectiveness analysis. 50 articles cited utility values from previous or overseas studies. Among original utility measurement studies EQ-5D and TTO were the most frequently used methods.

Different utility measurement tools yielded different results and there was little consistency in the ranking of utilities derived via various elicitation methods. While the most commonly studied population was patients, similar results were reported between patients and medical professionals. Caregivers tended to give higher utility scores. **CONCLUSIONS:** Despite an increasing trend of research on utility assessment in Japan, many studies still cite values from previous or overseas studies. The original studies focusing on utility measurement used various elicitation methods, revealing the impact of study population on utility values.

PIH20

IMPACT OF DEMOGRAPHICS ON HEALTH PREFERENCES IN CHINA: AN EXPLORATORY ANALYSIS OF CHINA EQ-5D-5L VALUATION STUDY

Jin X¹, Liu G², Luo N³, Li H⁴, Guan H⁵, Xie F¹

¹McMaster University, Hamilton, ON, Canada, ²Guanghua School of Management, Peking University, Beijing, China, ³Saw Swee Hock School of Public Health, National University of Singapore, Singapore, ⁴China Pharmaceutical University, Nanjing, China, ⁵Peking University, Beijing, China

OBJECTIVES: To identify demographic factors that affect health preference elicited using the composite time trade-off (cTTO) technique in the China EQ-5D-5L Valuation Study. **METHODS:** In the China EQ-5D-5L Valuation Study, cTTO uses the traditional TTO for states better than dead and the lead time TTO for states worse than dead. A total of 86 EQ-5D-5L health states were grouped into 10 blocks with 10 health states in each group where one very mild state (i.e. only one level 2 is presented) and the worst state 55555 are included in every block. Demographics such as age, gender, employment status, health insurance, the attitude toward living is better than being dead (LBTd), and belief in after-life were collected. Health preference was examined using mean, the number of states valued at 1 (non-trader), 0 (equal to being dead), -1 (potential censoring), the number of positive and negative scores, the difference between highest and lowest values, the very mild state had the highest value, and 55555 had the lowest value. Both univariate descriptive analyses and generalized linear models were used to explore the impact of demographics on health preferences. **RESULTS:** A total of 1296 participants recruited from Beijing, Chengdu, Guiyang, Nanjing and Shenyang were interviewed between December 2012 and January 2013 in this study. Both univariate and multivariate regression analyses revealed that the participants from Beijing were more likely to give positive TTO scores and had larger difference between the highest and lowest scores. Participants who agreed with LBTd tended to give positive scores compared with those who did not. Similarly, participants with health insurance or employed tended to give positive scores. **CONCLUSIONS:** We found that a few demographic indicators had significant impact on health preference. The impact needs to be adequately recognized in cost effectiveness analysis in China.

PIH21

VALUING HEALTH IN THE UAE: AN INVESTIGATION OF THE FEASIBILITY AND CULTURAL APPROPRIATENESS OF USING THE TTO AND DCE METHODS TO GENERATE HEALTH STATE VALUES

Papadimitropoulos M¹, El Barazi I², Blair I², Kalsaiti S³, Shah K⁴, Devlin N⁵

¹Eli Lilly & Company, Markham, ON, Canada, ²United Arab Emirates University, Al Ain, United Arab Emirates, ³United Arab Emirates University, Al-Ain, UAE, United Arab Emirates, ⁴Office of Health Economics, University of Sheffield, London, UK, ⁵Office of Health Economics, London, UK

OBJECTIVES: EQ-5D-5L is a widely-used measure of patient-reported health. Its use in economic evaluation requires a 'value set': numerical summaries of how good or bad each health state is. No EQ-5D-5L value sets are currently available in the Middle East. Our study is, to our knowledge, the first to investigate the potential for using standard health state valuation methods in this region. To test the feasibility of eliciting EQ-5D-5L values from a sample of the UAE general public using the EuroQol Group's standardised protocol; and to investigate any cultural issues relating to the use of the methods amongst Emirati nationals. **METHODS:** Values were elicited using face-to-face computer-assisted personal interviews, following the standardised protocol for valuing EQ-5D-5L. Adult members of the Emirati general public were recruited in public places. Respondents each completed 10 time trade-off (TTO) tasks and seven discrete choice experiment (DCE) tasks. In addition, they answered debriefing questions about their experience of completing the valuation tasks. Descriptive analyses were used to assess the face validity of the data. **RESULTS:** Two-hundred individuals were interviewed in December 2013. The face validity of the data appear to be reasonably high, with higher (lower) values elicited for mild (severe) health states. In the TTO tasks, mean values ranged from 0.812 for the mildest state (21111) to 0.194 for the worst state (55555). Health states were rarely valued as being worse than dead (6.1% of all observations). In a rationality check included in the DCE tasks, 99.5% of the respondents chose the dominant state (55221) over the dominated state (55554). **CONCLUSIONS:** Analysis is currently underway - final conclusions will be available by the time of the AP ISPOR meeting. We will discuss whether the standard methods are suitable for use in the UAE (and other countries with predominantly Muslim populations), or if some adaption of the methods is required.

PIH22

THE VALUATION OF EQ-5D-5L HEALTH STATES IN KOREA

Kim SH¹, Jo MW², Ahn J³, Shin S³, Ock M², Park J⁴, Luo N⁵

¹Dankook University, Cheonan, South Korea, ²University of Ulsan, Seoul, South Korea, ³National Evidence-based Healthcare Collaborating Agency, Seoul, South Korea, ⁴National Evidence-based Healthcare Collaborating Agency (NECA), Seoul, South Korea, ⁵Saw Swee Hock School of Public Health, National University of Singapore, Singapore

OBJECTIVES: This study aimed to estimate Korean preference weights for EQ-5D-5L based on values elicited from representative sample applying EuroQoL standard protocol. **METHODS:** Of 1,085 general populations were recruited using multi-stage quota sampling method in Korea. Each respondent valued 10 health states using the composite time trade-off and 7 health states using discrete choice

experiment in computer-assisted face-to-face interview. A range of prediction model was explored, the most appropriate model was determined in terms of goodness of fit, logical consistency and parsimony. **RESULTS:** Model with dummy variables of the level of severity associated with each dimension, an intercept associated with any move away from full health, and a term that picked up whether any dimension in the state was at 4th or 5th severe level was best predicted the utilities for observed health states. The model was selected as the final model because all coefficients were statistically significant and logically consistent and it was parsimonious. The final model had a mean absolute error of 0.027 and none out of 86 exceeded 0.1 of absolute error. **CONCLUSIONS:** The final model in this paper appeared to predict the utilities of the states, which was valued directly. This could be used interpolate quality weights of all EQ-5D-5L health states.

PIH23

WHAT REALLY MATTERS? A MULTI-VIEW PERSPECTIVE OF ONE PATIENT'S HOSPITAL EXPERIENCE

Edwards KJ, Duff J, Walker K

St Vincent's Private Hospital Sydney, University of Tasmania, Darlinghurst, Australia

OBJECTIVES: To identify what mattered to a patient and family member (health care recipients) during the patient's hospital experience and to examine the health care provider's awareness of what mattered to the recipients. **METHODS:** A qualitative descriptive investigation was undertaken using semi-structured interviews designed to compare multiple perceptions of one patient's hospital experience. Interviews were undertaken with the patient (post-surgical procedure), family member, and health care providers whom the patient identified as impacting the hospital experience. Interviews were audio recorded and transcribed. A definition of hospital experience was sought from each participant. Additional phrases as presented by the patient and family member were coded and grouped into categories and then salient themes. Phrases as presented by the health care providers were coded, and then allocated to the previously identified themes. **RESULTS:** One patient, his wife and seven health care providers (doctors (2), registered nurses (4) and a patient care orderly (1)) were interviewed. Definitions of what constitutes 'hospital experience' differ between the participants. Recipients of care include pre and post hospital admission periods, whereas providers limit hospital experience to admission. Three salient themes emerged from recipient data suggesting: medication management, physical comfort and emotional security are what mattered. Awareness of the significance of these factors differed between the providers and was theme dependent. **CONCLUSIONS:** Hospital experience as a term is poorly defined, and definitions differ between recipients and providers of care. Health care providers are not always aware of what matters to the patient and family during their hospital admission.

PIH24

THE STUDY OF SATISFACTION AND REASONS FOR ACUPUNCTURE THERAPY AT SIRINDHORN NATIONAL MEDICAL REHABILITATION CENTRE

Sujjajongcharoen K¹, Kositchaimongkol K¹, Kunapramote N¹, Chatwichien K¹, Pongmessa T¹, Taechaarpornkul W²

¹Silpakorn University, Nakhon Pathom, Thailand, ²Sirindhorn National Medical Rehabilitation Centre, Nonthaburi, Thailand

OBJECTIVES: Acupuncture is a widely popular alternative medicine. This study aimed to assess satisfaction and reasons for acupuncture therapy among patients receiving acupuncture at Sirindhorn National Medical Rehabilitation Centre (SNMRC) in Nonthaburi province, Thailand. **METHODS:** This cross-sectional study included randomly selected 177 patients attending acupuncture clinic at SNMRC during November 2012 to January 2013. The study instrument was a newly developed and validated questionnaire comprising 3 parts: general patient information (7 items), reasons (5 items) and satisfaction for acupuncture therapy (6 items); each item was graded into 5 levels ranging from 1 [lowest] to 5 [highest]. The patients completed the questionnaire by either self-administration or interview with the investigators. **RESULTS:** The patients recruited were aged between 31 to 90 years (mean [SD]: 64.27 [12.03]), with 69.5% being female. 113 Patients self-administered the questionnaire while 64 patients preferred to be interviewed, with no significant difference between the results of the two groups. The patients reported choosing acupuncture for osteoarthritis (35.6%), myopathy (27.7%) and neuropathy (19.2%), and most of them received acupuncture 4 times per month. Their most commonly reported reasons for acupuncture therapy were 'being recommended/supported by physicians or other people' (42.9%) and 'the belief that it is the best treatment approach' (29.4%). The majority of patients (42.2%) rated high satisfaction (4 points) for acupuncture therapy at SNMRC. The aspect with the highest satisfaction was cleanliness of the acupuncture room (mean [SD]: 4.46 [0.62]) while the lowest satisfaction was for the waiting time for acupuncture physicians (mean [SD]: 3.96 [0.88]). **CONCLUSIONS:** This study demonstrated that the level of patient satisfaction for acupuncture therapy at SNMRC was high; however, it would possibly be improved if the patients' waiting time could be shortened.

PIH25

ASSESSING FACTORS ASSOCIATED WITH YOUTH SUBSTANCE ABUSE IN THE US USING A STRUCTURAL EQUATION MODEL

Zhao Y, Gu NY

University of New Mexico, Albuquerque, NM, USA

OBJECTIVES: To assess factors associated with youth substance abuse (SA) using a U.S. representative sample. **METHODS:** A cross-sectional study using the 2012 US National Survey on Drug Use and Health (NSDUH) database was performed on youth population 12 to 17 years old (n=14,600). A structural equation model was applied to investigate factors that influenced the youth SA, the dependent latent variable, described using indicators including tobacco, alcohol and marijuana use. Six independent latent factors were youth tolerant attitude towards SA, perceived